WHAT IS CLAIMED IS:

1. A switch for directing optical signals in a telecommunications network comprising:

an optical backplane having a first optical path along which the optical signals flow in a first direction and at least a second optical path along which optical signals flow in a second direction; and

N interfaces, where N is greater than or equal to 2 and is an integer, each interface in optical communication with the network, each interface receiving optical signals from and transferring optical signals to the network, each interface in optical communication with the first path and the second path, each interface sending optical signals it receives from the network onto the first path and the second path, each interface transferring optical signals to the network it receives from the first path and the second path.

2. A switch as described in Claim 1 wherein the first path forms a closed continuous loop and the second path forms a closed continuous loop.

3. A switch as described in Claim 2 wherein the first path includes a first optical fiber and the second path includes a second optical fiber.

4. A switch as described in Claim 3 including optical connectors through which optical signals from the first fiber and the second fiber can flow and a chassis having slots in which the interfaces are held or in which the connectors are held if there is no interface, and wherein the N interfaces include a first

interface in communication with the first fiber and the second fiber, and a second interface in communication with the first fiber and the second fiber.

5. A switch as described in Claim 4 including a first optical connector, a first slot and a third interface which fits into the first slot that the first optical connector fits in until it is removed so the third interface and communicates with the first fiber and the second fiber.

6. A switch as described in Claim 5 including a power supply attached to the chassis and in electrical connection to each slot, the power supply powering the first, second and third interfaces when the first, second and third interfaces are fitted in the respective slots, the first interface passing the optical signals on the first fiber and the second fiber that is not directed to it onto the other interfaces fitted in the chassis.

7. A switch as described in Claim 6 wherein the third interface has an ID which it sends along the first fiber and the second fiber to the first and second interfaces fitted to the chassis so the first and second interfaces can identify the third interface, and the third interface receives the IDs of the first and second interfaces.

8. A switch as described in Claim 7 wherein if the first fiber fails, the optical signals will still reach the desired interface through the second fiber.

9. A switch as described in Claim 8 wherein each card includes a multichannel optical receiver for receiving optical signals from the network, and a multichannel optical transmitter for transmitting optical signals to the network, a channel tuned

receiver for receiving optical signals from the first and second fibers, a channel tuned transmitter for sending optical signals to the first and second fibers, a multiplexer in communication with the channel tuned transmitter for multiplexing optical signals from the channel tuned transmitter to the first and second fibers, and a demultiplexer in communication with the channel tuned receiver for demultiplexing digital signals from the first and second fibers.

10. A switch as described in Claim 9 wherein the multi-channel optical receiver determines a destination address for the optical signals it receives and sends the optical signals to an appropriate channel of the channel tuned transmitter to be transferred to the first and second fibers.

11. A method for directing the optical signals in a telecommunications network comprising the steps of:

receiving the optical signals at a first interface of a switch;

sending the optical signals onto a first optical fiber in a first direction and a second optical fiber in a second direction of the switch from the first interface;

receiving at a second interface of the switch the optical signals from the first fiber and the second fiber; and

transferring the optical signals from the second interface to a desired destination.

12. A method as described in Claim 11 including the steps of removing an optical connector in communication with the

first optical fiber and the second optical fiber from a first slot of a chassis of the switch; and inserting a third interface into the first slot so it communicates with the first fiber and the second fiber.

13. A method as described in Claim 12 including the step of sending an ID of the third interface from the third interface onto the first fiber and the second fiber to the first interface and the second interface fitted to the chassis so the first interface and the second interface can identify the third interface and send the optical signals to the third interface through the first fiber and the second fiber.

14. A method as described in Claim 13 including the step of sending an ID of the first interface and an ID of the second interface from the first interface and the second interface, respectively, onto the first fiber and the second fiber to the third interface so the third interface can identify the first interface and the second interface and send optical signals to the first interface and the second interface.

15. A method as described in Claim 14 including the step of receiving optical signals by the first interface sent by the third interface from the first fiber even though the second fiber has failed.

16. A method as described in Claim 15 including the steps of determining by a multi-channel optical receiver of the first interface the destination address for the optical signals the first interface has received from the network; and sending the optical signals to an appropriate channel of a channel tuned transmitter of the first interface to be transferred to the first fiber and second fiber.

17. A method for directing optical signals in a telecommunications network comprising the steps of:

receiving optical signals from the network at N interfaces, where N is greater than or equal to 2 and is an integer, each interface in optical communication with the network;

sending optical signals from each interface that each interface receives from the network onto a first optical path and a second optical path of an optical backplane;

flowing the optical signals along the first optical path in a first direction and along at least the second optical path in a second direction opposite the first direction, each interface in optical communication with the first path and the second path; and

transferring optical signals to the network from each interface that each interface receives from the first path and the second path.